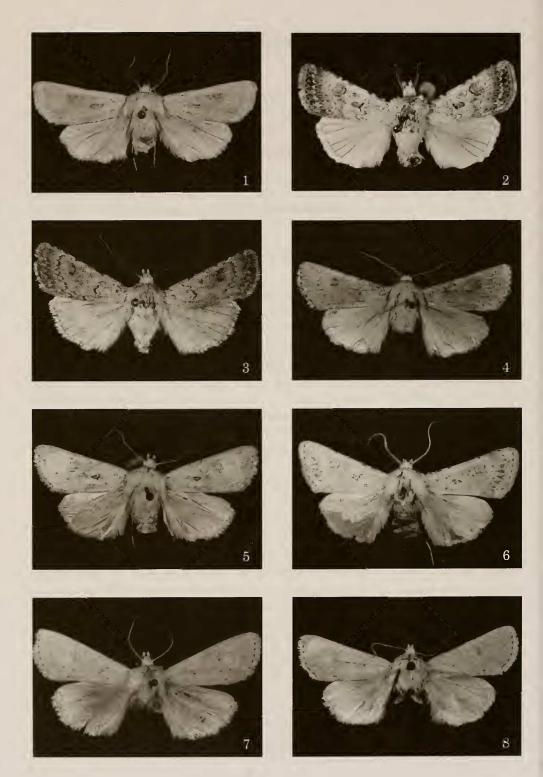
## On the presence of *Agrotis ripae* (Hübner, [1823]) in Balkan Peninsula (Lepidoptera: Noctuidae: Noctuinae)

## Stoyan BESHKOV

Agrotis ripae (Hübner, [1823]) was reported for the first time for Bulgaria (Black Sea Coast, Varna, 08.VIII.1931) by Buresch and Tuleschkow (1932), using the data of N. Karnozhitzki. The larva is reported as feeding on halophilous vegetation, especially Salsola kali L. and Cakile maritima Scop. (BURESCH & TULESCHKOW, 1932). More recently the species has been collected near Burgas, Balchik and Beloslav towns. Karnozhitzki (1954: 161) reported the taxon A. ripae obotritica Schmidt as a halophile species, inhabiting the sandy beaches of the valley of the Varnensko Ezero Lake, a salt lake connected with the sea. SOFNER (1961: 240) reported the species from Nessebar as Rhyacia ripae f. obotritica Schmidt. SLIVOV (1977: 61) reported A. ripae from Varna and Nessebar towns and A. ripae f. weissenborni Frr. from Balchik, Varna and Burgas towns, all on the Black Sea coast. In Popescu-Gord (1964: 156-157, Pl. IX: 36) the taxon A. ripaef. weissenborni is also reported for the Black Sea Coast, Eforie Sud and for Bugaz (Cetatea Alba) [Akkerman, Black Sea Coast, South of Odessa]. A specimen from Eforie Sud is illustrated there in monochrome. There is no doubt that it belongs to A. ripae. According to RAKOSY (pers. comm. 2.IV.1996) from the material he checked, collected from Dobrogea and Danube Delta, he could find only A. desertorum. However, the pair of specimens from Danube Delta, illustrated in RAKOSY (1996: Taf. 27, Fig. 28-29), in fact belong to Agrotis ripae. Here I would like to quote Dr. POPESCU-GORJ (pers. comm. 29.IV.1996): "Concerning Agrotis ripae - the specimens present in my collection, originary from Dobrogea, have been revised by the great French specialist BOURSIN who had established that they indeed belong to Agrotis ripae desertorum B.- those having a well-marked drawing on the first pair of wings, while he considered the almost white specimens, without an obvious drawing, as Agrotis ripae f. weissenborni Frr. both forms occurring in Dobrogea".

The habitat of *A. ripae*, salt soil with a halophile vegetation is described in SLIVOV (1977: 76). According to him the flight period of *A. ripae* is June-July,



whereas for A. ripae f. weissenborni it is August-September. HACKER (1989: 41) gives for A. ripae a flight period May-June; FIBIGER (1990) gives June and July as the flight period. Goater (pers. comm.) states that in north Europe the species occurs strictly on the seaward side of sand dunes and that the larvae can often be found in quantity in autumn by sifting the sand with the fingers in the vicinity of the foodplants.

In the collection of N. Karnozhitzki in the National Museum Natural History (NMNH) (Sofia) eleven specimens of A. ripae (Fig. 5-8) from Bulgarian Black Sea Coast have been found with localities as follows: Varna, 02.VI.1932, 1 o, 16.VII.1933, 1 0, 11.VIII.1940, 1 0, 28.VIII.1952 (Fig. 4), Gen. prep. 3./06.IV.1993, Beshkov, 1 , 08.VIII.1931, 1 , 09.VIII.1931, 1 , 23.VIII.1935, 1 , 28.VIII.1936, 1 ♀, N. Karnozhitzki leg., 02.IX.1935, 1 ♂ (Fig. 6), Gen. prep. 5./06.IV.1993, Beshkov (Fig. 9; 31), 27.VIII.1935, D. Zlatarski leg., 1 ♀ (Fig. 7), Gen. prep. 6./06.IV.1993, Beshkov (Fig. 12); Burgas, 24.VII.1949, 1 o, N. Karnozhitzki leg. (Fig. 5), Gen. prep. 4./06.IV.1993, Beshkov (Fig. 32); Gebedje, Dikili-Tasch [Beloslav Town: Pobitite Kamani, Varna Region], 13.VIII.1950, N. Karnozhitzki leg., 1 \( \text{Fig. 8} \), Gen. prep. 2./06.IV.1993, Beshkov (Fig. 13).

All the localities mentioned above are situated on the Black Sea Coast. Although the present author has collected on many occasions in that area he has never succeeded in finding this very local, rare halophile species. Also, in the literature for Bulgaria from recent years there is not a single report of it. Maybe the reason is the strong human influence on the Black Sea beaches, especially the destruction of its habitats - the plazh line.

Fibiger (pers. comm., September 1994), who has never seen specimens from Bulgaria, suggests that they might belong to A. alexandriensis Bethune-Baker, 1894

Fig. 1. A. ripae of - Dania: F, PF16, Keldsnor, 9.-15.VII.1982, Peder Skou leg., in coll. Beshkov, Gen. prep. 3./09.IV.1993, Beshkov; wingspan = 35 mm

Fig. 2. A. desertorum wagneri of - Asia Minor, Prov. Ankara, 60 km N from Ankara, 10 km past Pazar, Kazan Region, 1000 m, 19.VII.1991, S. Beshkov & L. Prekroutov leg., in coll. Beshkov, Gen. prep. 1./09.IV.1993, Beshkov; wingspan = 36 mm

Fig. 3. A. desertorum wagneri 🔿 - Asia Minor, Prov. Ankara, 60 km N from Ankara, 10 km past Pazar, Kazan Region, 1000 m, 19.VII.1991, S. Beshkov & L. Prekroutov leg., in coll. Beshkov, Gen. prep. 2./09.IV.1993, Beshkov; wingspan = 35 mm

Fig. 4. A. ripae 🔿 - Bulgaria, Black Sea Coast, Varna Town, 28.VIII.1952, N. Karnozhitzki leg., in coll. Karnozhitzki in NMNH (Sofia), Gen. prep. 3./06.IV.1993, Beshkov; wingspan = 37 mm Fig. 5. A. ripae of - Bulgaria, Black Sea Coast, Burgas Town, 24.VII.1949, N. Karnozhitzki leg., in coll. Karnozhitzki in NMNH (Sofia), Gen. prep. 4./06.IV.1993, Beshkov; wingspan = 34 mm Fig. 6. A. ripae 🔿 - Bulgaria, Black Sea Coast, Varna Town, 02.IX.1935, D. Zlatarski leg., in coll. Karnozhitzki in NMNH (Sofia), Gen. prep. 5./06.IV.1993, Beshkov; wingspan = 36 mm Fig. 7. A. ripae ♀ - Bulgaria, Black Sea Coast, Varna Town, 27.VIII.1935, D. Zlatarski leg., in coll.

Karnozhitzki in NMNH (Sofia), Gen. prep. 6./06.IV.1993, Beshkov; wingspan = 37 mm

Fig. 8. A. ripae ♀ - Bulgaria, Black Sea Coast, Gebedje, Dikili-Tasch [Beloslav Town: Pobitite Kamani, Varna Region], 13.VIII.1950, N. Karnozhitzki leg., in coll. Karnozhitzki in NMNH (Sofia), Gen. prep. 2./06.IV.1993, Beshkov; wingspan = 34 mm

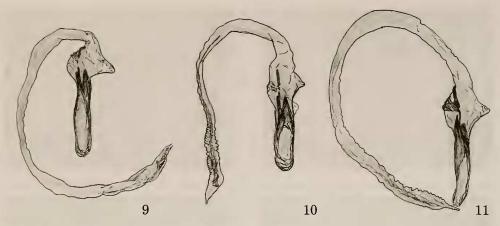


Fig. 9. A. ripae of, everted vesica - Bulgaria, Black Sea Coast, Varna Town, 02.IX.1935, D. Zlatarski leg., in coll. Karnozhitzki in NMNH (Sofia), Gen. prep. 5./06.IV.1993, Beshkov Fig. 10. A. ripae of, everted vesica - DDR, MTB 1846, Umg. Greifswald, Strundt. Wampen, e.l. 8.I.1990, L. Lehmann leg., in coll. Beshkov, Gen. prep. 8./30.VIII.1993, Beshkov Fig. 11. A. desertorum wagneri of, everted vesica - Asia Minor, Prov. Ankara, 60 km N from Ankara, 10 km past Pazar, Kazan Region, 1000 m, 19.VII.1991, S. Beshkov & L. Prekroutov leg., in coll. Beshkov, Gen. prep. 2./09.IV.1993, Beshkov

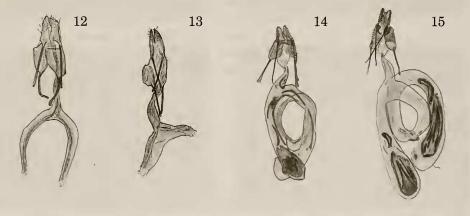


Fig. 12. A. ripae ♀, genitalia - Bulgaria, Black Sea Coast, Varna Town, 27.VIII.1935, D. Zlatarski leg., in coll. Karnozhitzki in NMNH (Sofia), Gen. prep. 6./06.IV.1993, Beshkov Fig. 13. A. ripae ♀, genitalia - Bulgaria, Black Sea Coast, Gebedje, Dikili-Tasch [Beloslav Town: Pobitite Kamani, Varna Region], 13.VIII.1950, N. Karnozhitzki leg., in coll. Karnozhitzki in NMNH (Sofia), Gen. prep. 2./06.IV.1993, Beshkov

Fig. 14. A. desertorum wagneri ♀, genitalia in natural position - Asia Minor, Cappadocia, near Zelve Village, Goreme Region, 1100 m, 22.VII.1995, S. Beshkov, J. Gelbrecht & E. Schwabe leg., in coll. Beshkov, Gen. prep. 3./20.I.1996, Beshkov

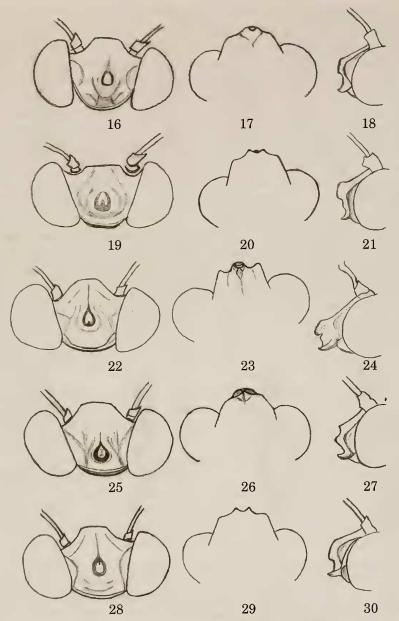
Fig. 15. A. desertorum wagneri ♀, genitalia in natural position - Asia Minor, Cappadocia, above Uchisar Village on the way to Urgup, 1415 m, 23-24.VII.1995, S. Beshkov, J. Gelbrecht & E. Schwabe leg., in coll. Beshkov, Gen. prep. 2./20.I.1996, Beshkov

or to A. desertorum desertorum. However, the presence of well developed stigmata, especially the claviform stigma, eliminate alexandriensis, known from southern Spain, Tunisia, Libya, Egypt and Arabian Peninsula, and the wing colour and pattern, as well as the structure of the genitalia eliminate A. desertorum desertorum. Here the specimens from Bulgaria are identified as Agrotis ripae ripae. Another subspecies of A. ripae, ssp. cursoriodes (Hampson, 1903) is present in Syria, Lebanon and Israel (HACKER, 1990). FIBIGER (1997) recognized alexandriensis Bethune-Baker as a bona species. External and internal differences between A. alexandriensis and A. ripae, including everted vesica are described in details, female and male genitalia of A. ripae, A. alexandriensis, A. desertorum desertorum and A. desertorum wagneri, including everted vesica of these taxa are figured there.

KOZHANTSHIKOV (1937: 507-509) gives a review of almost all the known forms and subspecies of A. ripae. He considers all of them together and gives for the species a range which extends from Ireland to the Russian Far East, According to him ochreous specimens (mainly from Northern Europe - British Islands, Denmark and Scandinavia) should be described under the name weissenborni Frr.; greyish-white forms from Egypt and Southern Europe - desertorum B.; a pure white form (also southern) - desillii Pier.; almost devoid of spots, but with crosslines present - alexandriensis Bak.; a yellow form with indistinct lines but with a visible pattern (from Semirechie) - psammoda Stgr.; with a terminal line present on the hind wings, and having grey and ochreous tones on fore wings and pale venation (Mongolia, Southern Siberia, Transbaikalia) - albovenosa Tschtv.; a silvery-grey form - wagneri Crt. Kozhantshikov (1937) also refers to the many aberrations that have received names, but which are not related to any particular geographical area and which are not reviewed by him, According to EFETOV and BUDASHKIN (1990: 92), following the localities given in KOZHANTSHIKOV (1937), Simferopol and Sevastopol, A. ripae Hb. is also present in Crimea.

ZOLOTARENKO (1970: 342-344) also gives the range of *A. ripae* as extending from Europe, across Northern Mongolia to the coasts of the Pacific Ocean to the east. The reason for giving such a large range is probably because he treated all the taxa from this group together. According to Fibiger (1990) the genitalia of both sexes illustrated in Zolotarenko (1970) are of *A. desertorum*. Taking into account that in West Siberia *A. desertorum* is more likely to be present than *A. ripae*, and the description given in Zolotarenko (1970), which could apply to either species, the writer thinks that in Zolotarenko *A. desertorum* is intended. This is supported by the fact that the description of larva in the same book does not accord well with *A. ripae*.

HACKER (1989: 41) gives *A. ripae ripae* for the north coasts of Black Sea and extending from South Russia to Central Asia. HACKER (1990: 42-43) indicates the presence of *A. ripae ripae* in the Balkan Peninsula, with *A. desertorum desertorum* in the Near East and *A. desertorum wagneri* in Turkey only. Here for the first time *A. desertorum* is reported from Balkan Peninsula (Romania, Dobrogea). Later, also



Faces of A. ripae, all from Bulgaria, Black Sea Coast, in coll. Karnozhitzki in NMNH (Sofia)

Fig. 16-18. Female - Varna Town, 27.VIII.1935, D. Zlatarski leg.

Fig. 19-21. Male - Varna Town, 28.VIII.1952, N. Karnozhitzki leg.

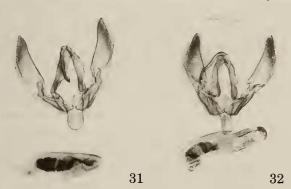
Fig. 22-24. Male - Burgas Town, 24.VII.1949, N. Karnozhitzki leg.

Fig. 25-27. Male - Varna Town, 02.IX.1935, D. Zlatarski leg.

Fig. 28-30. Female - Gebedje, Dikili-Tasch [Beloslav Town: Pobitite Kamani, Varna Region], 13.VIII.1950, N. Karnozhitzki leg.

HACKER (1992: 365) again reports A. desertorum from Romanian Dobrogea, According to him it is a South-Russian-Near-Eastern steppe species. It seems that most of subsequent reports of A. desertorum for Europe follow these records of Hacker. Recently A. desertorum is reported to occurs in Poland (NOWACKI, PALKA & Sosinski, 1997). In the list of European Noctuidae (Fibiger & Hacker, 1990; 82) both species A. ripae and A. desertorum are given as occurring in Europe. In the distribution maps of European Noctuidae by SVENDSEN & FIBIGER (1992: 62; 223-224) A. ripae is marked for the Atlantic and Baltic Coasts and their near surroundings from South Spain to South Sweden and to North-West Byelarus to East, A. desertorum is marked from European part of Black Sea Coast (i.e. Bulgaria and Romania), along the border of Europe, northeastern to South Ural. In the text A, ripae, outside Europe is known from the coast of northern Africa, Euroasiatic," The present author thinks that if A. ripae has the above-mentioned range it cannot be Euroasiatic. It occurs on the coast of northern Africa (Egypt and Lebanon - Hacker, 1989: 41), but probably not in Asia. Maybe the previous reports for A. ripae from Asia (e.g. Turkey) refer to the A. desertorum/wagneri complex, According to SVEND-SEN & FIBIGER (1992: 62) "due to confusion with A. ripae. the distribution of A. desertorum outside Europe is uncertain.". The writer thinks that the distribution of A. desertorum in Europe, as well as the distribution of A. ripae in Asia is not sufficiently clarified. Here it is necessary to mention that the occurrence of A. desertorum in the Balkans does not mean that A. ripae is not present there; both species seem to be sympatric along North Black Sea Coast.

HACKER (1986: 27) recognized the taxon *wagneri* Corti & Draudt, 1933 (*Agrotis ripae* f. *wagneri*) from Turkey as a bona species; *A. ripae* is a strongly halophilous species, whereas *wagneri* is widely distributed in Turkey up to 2800 m. In his book FIBIGER (1990: 94-96) reported both species for Europe with the range as above (SVENDSEN & FIBIGER, 1992). He recalled *A. desertorum* from synonymy and regarded *wagneri* as a



subspecies of *desertorum*, as shown by the differences in the genitalia of *A. ripae* and *A. desertorum*. FIBIGER (1990) and SVENDSEN & FIBIGER (1992) considered that for both species *A. ripae* and *A. desertorum* the many local varietal names that have been used to describe them are of no real taxonomic importance.

Fig. 31. *A. ripae* ♂ - Bulgaria, Black Sea Coast, Varna Town, 02.IX.1935, D. Zlatarski leg., in coll. Karnozhitzki in NMNH (Sofia), Gen. prep. 5./06.IV.1993, Beshkov. Male genitalia. Fig. 32. *A. ripae* ♂ - Bulgaria, Black Sea Coast, Burgas Town, 24.VII.1949, N. Karnozhitzki leg., in coll. Karnozhitzki in NMNH (Sofia), Gen. prep. 4./06.IV.1993, Beshkov. Male genitalia.

The differences in the male and female genitalia, including everted vesica are described in FIBIGER (1990) and described and figured in FIBIGER (1997). In this article the differences in the everted vesica between both species are illustrated as well. Judging from the very few specimens of *A. ripae* we have had for examination we consider the structure of the everted vesica to be the most important distinguishing feature. In the basal part of the vesica in both species there is a round scobinated process, very strong with larger and more numerous teeth and a bulb-like base in *A. desertorum wagneri* (Fig. 11). In *A. ripae* the scobinated process is visibly slender, with fewer and smaller teeth, not distended in the base (Fig. 9-10).

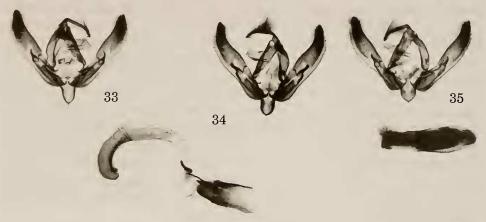


Fig. 33-35. A. desertorum wagneri ♂ - Asia Minor, Cappadocia, above Uchisar Village on the way to Urgup, 1415 m, 23-24.VII.1995, S. Beshkov, J. Gelbrecht & E. Schwabe leg.: Fig. 33. Gen. prep. 6./20.I.1996, Beshkov. Male genitalia. Fig. 34. Gen. prep. 7./20.I.1996, Beshkov. Male, genitalia with everted vesica. Fig. 35. Gen. prep. 8./20.I.1996, Beshkov. Male genitalia.

The basal part of the vesica between the top of the aedoeagus and the scobinated process is strongly sclerotised with a well defined sclerotised radiate bands in *A. desertorum wagneri*, only slightly defined in *A. ripae*. The female genitalia of both species are also discussed by FIBIGER (1990) and described and figured in FIBIGER (1997). Here the female genitalia of both species are also illustrated (Fig. 12-15).

Some other differences between both species can be found in the underside of the wings. In *A. desertorum wagneri*, the forewings in males are brown-yellowish, and a well-defined, dark postmedian fascia usually present; discal spot present, well defined. Forewings in females are darker, especially in the terminal area, with light costal area from the base of the wing to postmedian fascia. Hindwings in males whitish, discal spot and postmedian fascia usually present; costal area yellowish, darker than ground colour; sometimes a postmedian fascia is formed by black sagittal spots on the veins; terminal fascia dark, fringes white. In females, hindwings as in the males but darker, with a lighter area in the centre of the wings. In *A. ripae* the undersides of forewings and hindwings are bright

white; discal spot and postmedian fascia on forewings usually absent, and when present (only in darker specimens) never well defined; terminal fascia and fringes white. Hindwings upperside and underside white in both sexes.

An attempt has been made to be find some differences in the heads, especially in the frons of *A. ripae* and *A. desertorum*. No one important feature has been found for distinguishing the species, but it turns out that every individual has its own "face". Perhaps the frons of *A. desertorum* is more elongate and the whole "face" is more angular and the head capsule more sclerotized. The heads of *A. ripae* from West Europe which have been examined by the author (1 specimen from Denmark and another from Germany) show more spherical and less elongated and sclerotized faces. Here, only the "faces" of Bulgarian *A. ripae* specimens are illustrated (Fig. 16-30).

In Turkey A. desertorum wagneri seems to be a common species. The present author has collected it in several localities in Asia Minor as follows: Prov. Ankara, 60 km N from Ankara, 10 km W of Pazar, Kazan Region, 1000 m, 19.VII.1991, 3 ੋਂ ੋਂ, S. Beshkov & L. Prekroutov leg. (Fig. 2-3); Cappadocia, Karain Village near Urgup, 16.VII.1991, S. Beshkov & L. Prekroutov leg., 2 ♂♂, 1 ♀ (Gen. preps 4-5./20.I.1996). Cappadocia, near Zelve Village, Goreme Region, 1100 m, 22.VII.1995, S. Beshkov, J. Gelbrecht & E. Schwabe leg., 3 of of, 1 \(\Quad \) (Gen. prep. 3./20.I.1996) (Fig. 14); Cappadocia, above Uchisar Village on the way to Urgup, 1415 m, 23-24.VII.1995, S. Beshkov, J. Gelbrecht & E. Schwabe leg., 8 of of (Gen. preps 6-8./20.I.1996) (Fig. 33-35), 1 ♀ (Gen. prep. 2./20.I.1996) (Fig. 15); Ilgaz Mts, 1080 m, 4 km to Kurtcimeni, 17 km to Cerkes from Gerede, Prov. Cankiri, 11.VII.1995, S. Beshkov, J. Gelbrecht & E. Schwabe leg., 1 of; Prov. Nigde, Hasan Dagh, A. Dikmen Village near Taspinar, 1100 m, 09.VI.1996, S. Beshkov, J. Gelbrecht & T. Drechsel leg., 1 of; Cappadocia, near Urgup Town, 1100 m, 16.VI.1996, S. Beshkov, J. Gelbrecht & T. Drechsel leg., 1 ♂, 1 ♀; Prov. Mersin, Sertavul Pass near Karaman, 1550 m, 15.VI.1996, S. Beshkov, J. Gelbrecht & T. Drechsel leg.; Cappadocia, above Uchisar Village on the way to Urgup, 1300 m, 18.VI.1996, S. Beshkov, J. Gelbrecht & T. Drechsel leg.; Prov. Cankiri, Ilgaz Mts, 2 km to Ilgaz Town from Gerede, 860 m, 20.VI.1996, S. Beshkov, J. Gelbrecht & T. Drechsel leg.,  $2 \circlearrowleft \circlearrowleft$ ,  $1 \circlearrowleft$  (all in coll. Beshkov and all gen. preps ellaborated by Beshkov).

\* \*

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## Върху присъствието на *Agrotis ripae* (Hübner, [1823]) на Балканския полуостров (Lepidoptera: Noctuidae: Noctuinae)

Стоян БЕШКОВ

(Резюме)

Съобщават се единадесет екземпляра от рядката нощна пеперуда Agrotis ripae (Hübner, [1823]) от българското черноморско крайбрежие, неправилно приемана в най-новата литература за Европа като атлантомедитерански вид. Вместо него за България грешно е съобщаван Agrotis desertorum. Илюстрирани са екземпляри от Agrotis ripae от България и Западна Европа и от близкородствения му таксон Agrotis desertorum wagneri от Турция, както и женските и мъжките генитални арматури, включително и надутите везики на двата таксона. Направен е и опит да се намерят разлики в главовите капсули, особено в челата, между Agrotis ripae и Agrotis desertorum wagneri. Разликите между А. ripae и А. desertorum се обсъждат заедно с преглед на ареалите, биономията и близкородствените им таксони. В литературата за България всички съобщения за А. desertorum трябва да се приемат като отнасящи се за А. ripae, а находищата на последния в литературата за България да се приемат за правилни. Вероятно е двата вида да са симпатрични в румънската част от Добруджа, където А. ripae е доказан със сигурност.